

## CLAIMS

1. A heat-resistant, thermally conductive material being made from an organic-inorganic hybrid material, prepared by heating a sol containing a metal or semimetal alkoxide, and an organosilicon compound, plus a highly thermally conductive filler, to gel said sol.
2. A heat-resistant, thermally conductive material in accordance with Claim 1, wherein said organosilicon compound is a organosiloxane having functional group(s) that are reactive with said metal or semimetal alkoxide at one or both ends.
3. A heat-resistant, thermally conductive material in accordance with Claim 1 or 2, wherein said organosilicon compound is a polyorganosiloxane having functional group(s) that are reactive with said metal or semimetal alkoxide at one or both ends, with the weight average molecular weight of said polyorganosiloxane being in the range of between 400 and 15000.
4. A heat-resistant, thermally conductive material in accordance with Claim 1 or 2, wherein said organosilicon compound is a polyorganosiloxane having functional group(s) that are reactive with said metal or semimetal alkoxide at one or both ends, with the weight average molecular weight of said polyorganosiloxane being higher than 15000.
5. A heat-resistant, thermally conductive material in accordance with Claims 1 to 4, wherein said organic-inorganic hybrid material is synthesized by the condensation reaction between the reactive functional group(s) at one or both ends of said organosilicon compound and said metal or semimetal alkoxide, accompanying hydrolysis.
6. A heat-resistant, thermally conductive material in accordance with Claims 1 to 5, wherein the metal of said metal alkoxide is of one or more kind(s) of metal(s) selected from a group consisting of boron aluminum, silicon, titanium, vanadium, manganese, iron, cobalt, zinc, germanium, yttrium, zirconium, niobium, lanthanum, cerium, cadmium, tantalum and tungsten.
7. A heat-resistant, thermally conductive material in accordance with Claim 1, wherein said highly thermally conductive filler is a fine powder of one

or more kind(s) of metal and/or metal oxide and/or metal nitride and/or metal carbide.